

SPECIFICATION



Daxian Communication Technology Limited

深圳市大显科技有限公司

Shenzhen Daxian Technology Co., Ltd.

国光 Xtreme4 BT 天线组件

GGEC Xtreme4 BT Antenna assembly

产品规格书

Product Specification

客户 connection	国光 GGEC	频段 frequency range	2400 ~ 2500MHz			
项目名称 entry name	Xtreme4	版本 edition	V06			
物料编号 Material No	1t-reme4-037	颜色 Color	黑色 Black			
客户料号 Customer Item Number						
R F 设计 R F Design				胡鹏 Peng.Hu	结构设计 Structural Design	闭业智 YeZhi.Bi
品质经理 Quality Manager				胡子寅 Ziyin.Hu	技术总监 Technical Director	张磊 Lei.Zhang
日期 Date				2023-08-14		

客户确认:

Customer confirmation:

装配是否符合贵司要求: OK NGWhether the assembly meets your company's requirements: OK NG

深圳市大显科技有限公司

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一 项目说明 Project Description

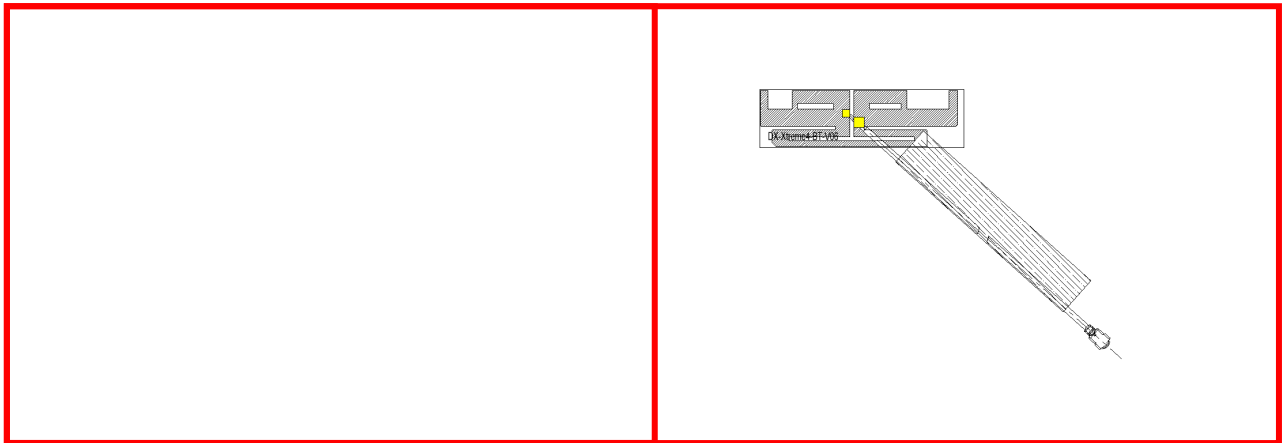
客户名: Customer Name:	国光 GGEC
整机类型: Type of complete machine:	音箱 loudspeaker box
天线频段: Antenna band:	2400 ~ 2500MHz
天线形式: Antenna form:	FPC+同轴线+线材海绵 FPC+coaxial line+wire sponge
馈电形式: Feed form:	焊接 weld
馈脚数量: Number of feed legs:	两个 Two
硬件版本: Hardware version:	/

二 BT 天线组件 Antenna assembly

1 规格 specifications

本报告主要提供 Xtreme4 项目天线的各项电气和结构性能参数的测试状况。下图为大显设计的天线图片。

This report mainly provides the testing status of various electrical and structural performance parameters of the antenna for the Xtreme4 project. The following image shows an antenna with a large display design.



天线外观图

antenna appearing diagram

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1.1 电气规格标准 Electrical specifications and standards

1.1.1 电性能指标 Electrical performance index

天线工作频段在 **2400 ~ 2500 MHz**。下表是大显设计和量产天线的电性能的指标。

The operating frequency band of the antenna is between 2400 and 2500 MHz. The following table shows the electrical performance indicators of large display design and mass production antennas.

Frequency Range	Frequency (MHz)	VSWR
BT	2400 ~ 2500	≤ 2

1.1.3 天线位置布局 Antenna Location Layout



参考图片：天线需尽量靠近壳料边进行贴合，主板平行高度高于天线面，所以天线须尽量往上贴。

天线贴合时，右侧尽量对齐箭头标识处的槽位

参考图片：天线需尽量靠近壳料边进行贴合，主板平行高度高于天线面，所以天线须尽量往上贴，右侧尽量对齐箭头标识处的槽位。Reference picture: the antenna should be attached as close as possible to the edge of the shell material, and the parallel height of the motherboard is higher than the antenna surface, so the

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2. 测试设备 The Equipment of Active Test

Satimo 3D Chamber 6×4×4(m)

Agilent 8960 E5515c

Network analyzer-R&S ZVL



图 2

Figure 2

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3 测试 test

3.1 驻波(VSWR)的测试 Test of standing wave (VSWR)

3.1.1 测试连接: VSWR 测试装置依次连接为: R&S ZVL 网络分析仪 → 测试线 → 测试治

Test connection: The VSWR test device is sequentially connected as follows: R&S ZVL network analyzer → test line → test fixture

实测(附图)Actual measurement (attached drawing)

3.2 增益及效率、功率 (TRP)、灵敏度 (TIS) 的测试

Gain and efficiency, power (TRP), sensitivity (TIS) testing

3.2.1 测试的场地 Test site:

大显微波暗室。测试频率范围为 400MHz—6GHz, 静区范围为 50cm 圆周, 反射率小于-50 dB。

Large display microwave anechoic chamber. The test frequency range is 400MHz - 6GHz, the static zone range is 50cm circumferential, and the reflectivity is less than -50dB.

3.2.2 测试的仪表 Tested Instruments:

R&S ZVL 网络分析仪、Agilent8960 E5515C、标准喇叭天线、法国 SATIMO-SG24SYSTEM 系统、打印机等。

R&S ZVL network analyzer, Agilent 8960 E5515C, standard horn antenna, French SATIMO-SG24SYSTEM system, printer, etc.

3.2.3 测试数据 : 在微波暗室中, 测试的功率和灵敏度相关的数值如下表

Test data: In a microwave anechoic chamber, the values related to the power and sensitivity tested are shown in the table below

OTA 有源测试 OTA Active Test:

BAND	CH	TRP	TIS
BT	0	9.71	-90.21
	39	10.13	-90.09
	78	9.89	-90.38

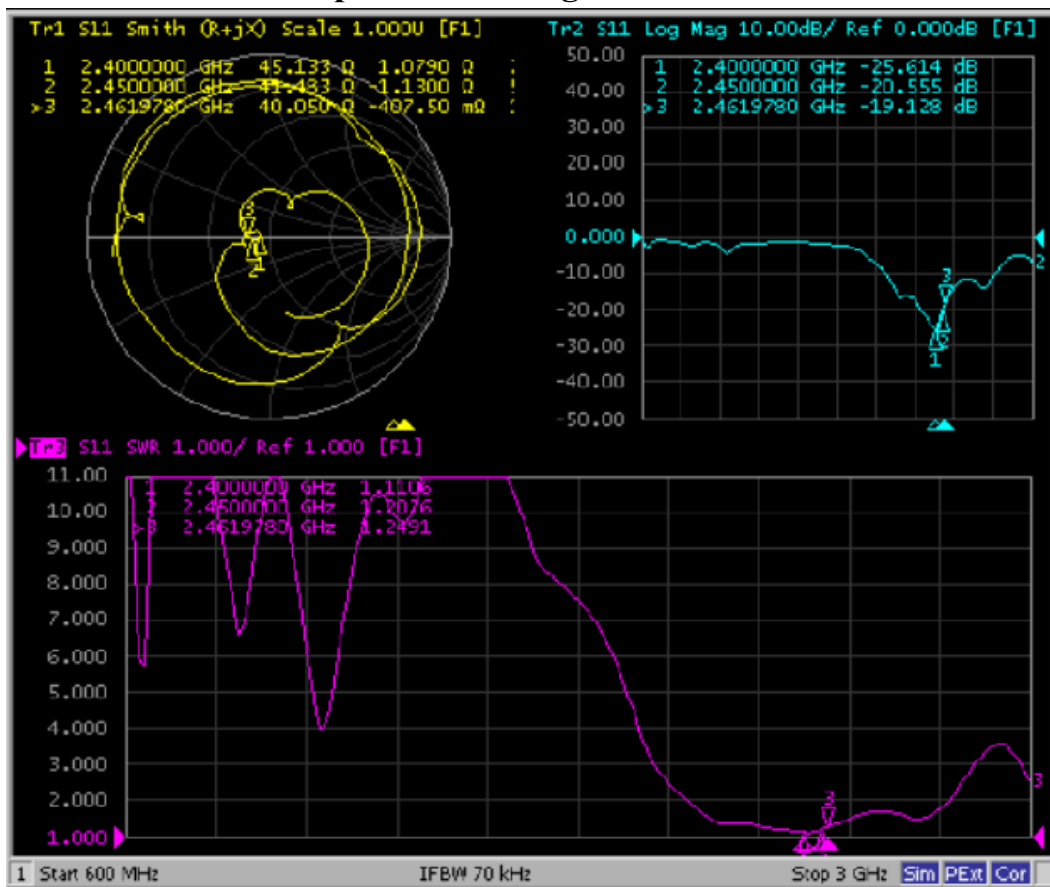
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无源效率&增益 Passive efficiency&gain:

Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)
2400	56.47	-2.48	1.77
2410	58.32	-2.34	2.01
2420	56.59	-2.47	1.92
2430	57.69	-2.39	1.63
2440	56.35	-2.49	1.58
2450	58.05	-2.36	2.09
2460	57.03	-2.44	2.05
2470	58.04	-2.36	1.83
2480	58.02	-2.36	1.86
2490	58.29	-2.34	1.65
2500	58.14	-2.35	1.91

4、VSWR 参数图 VSWR parameter diagram

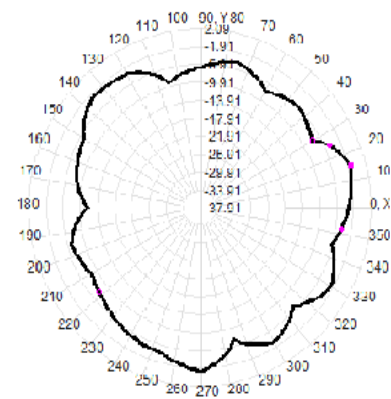
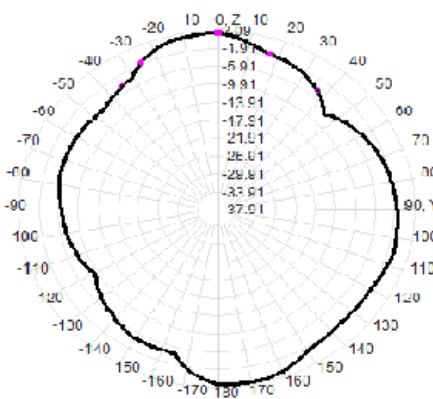
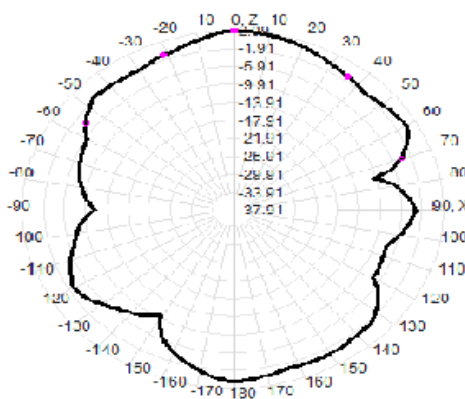
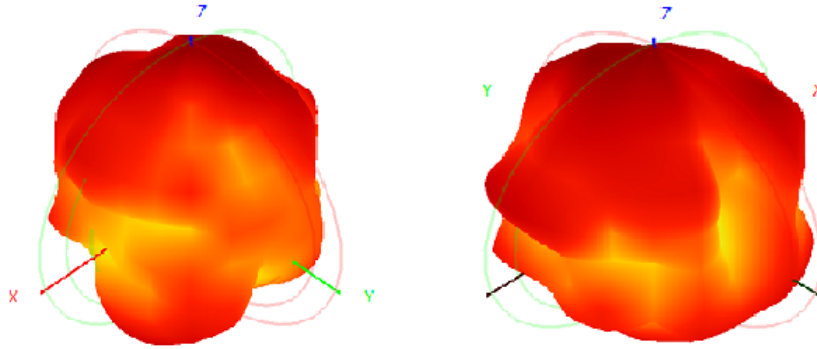


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5、无源场型图-2450MHz

Passive Field Pattern Diagram - 2450MHz

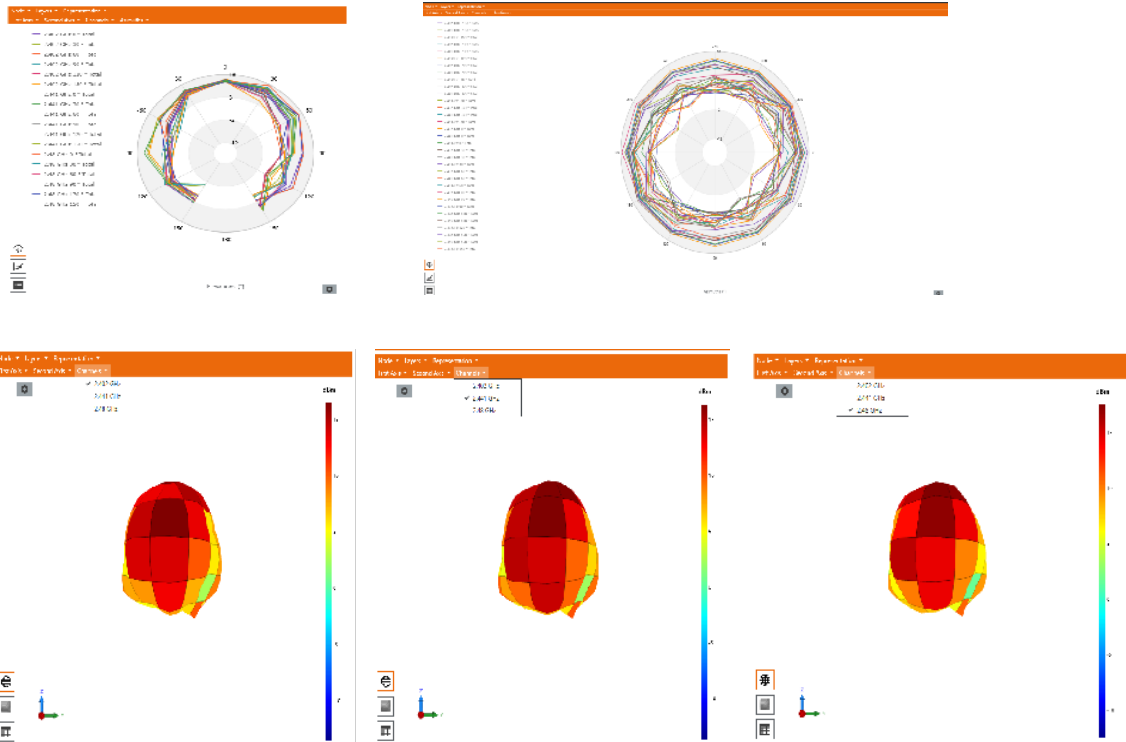


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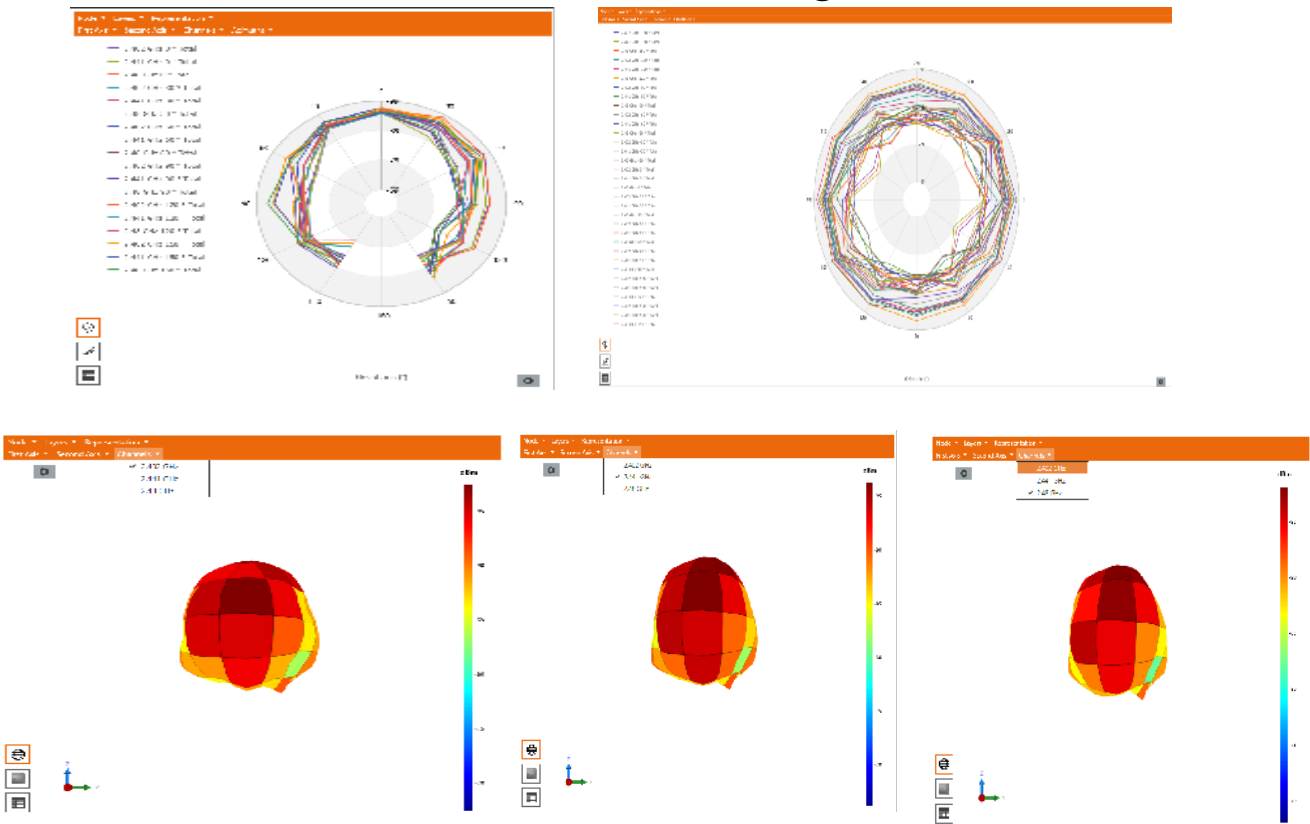
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6、有源场型图-TRP Active Field Pattern Diagram - TRP

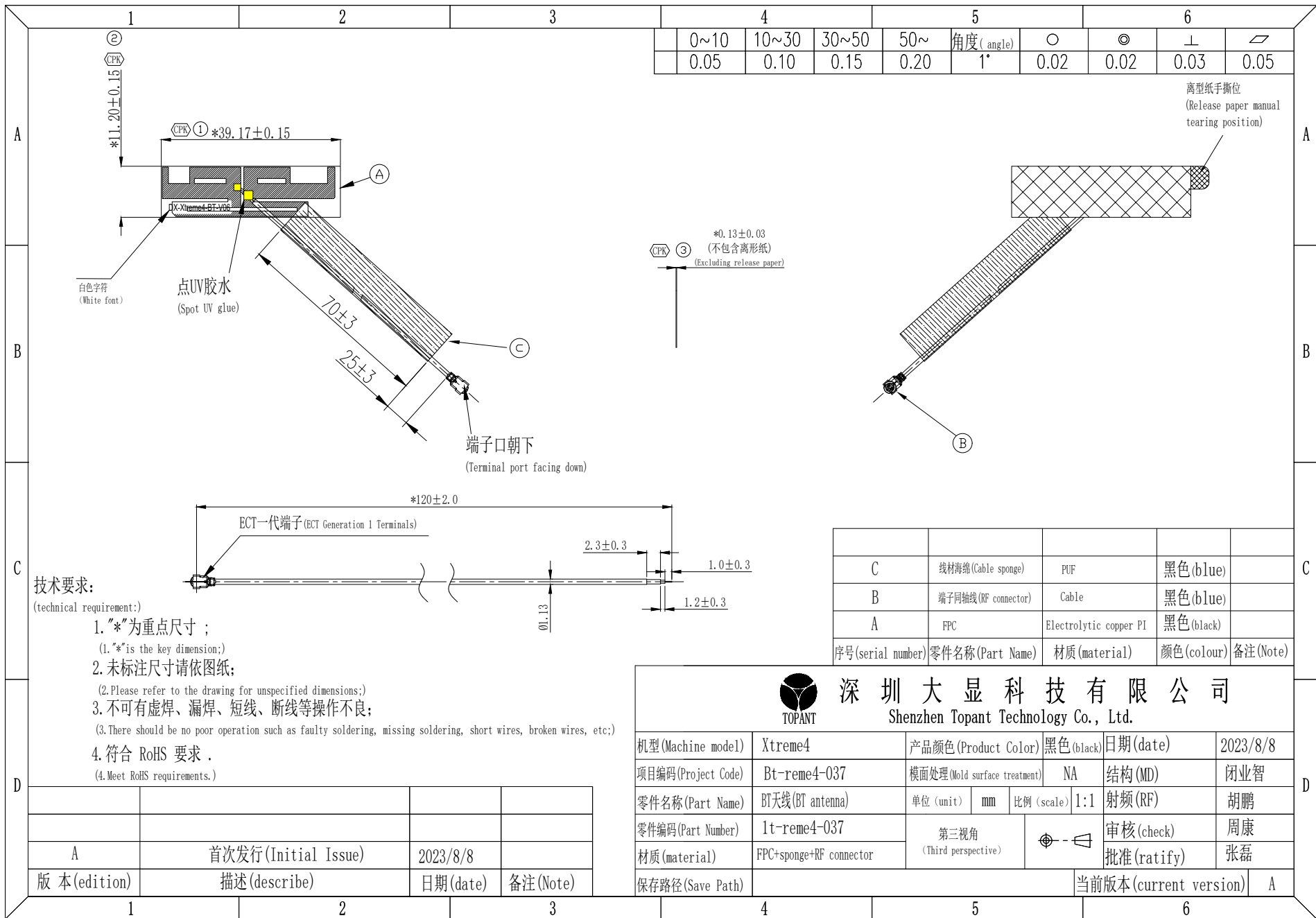


6.1 有源场型图-TIS Active Field Pattern Diagram - TIS



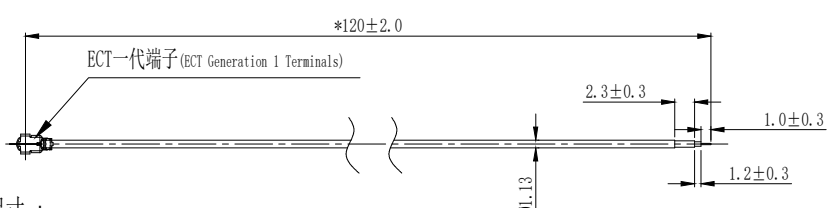
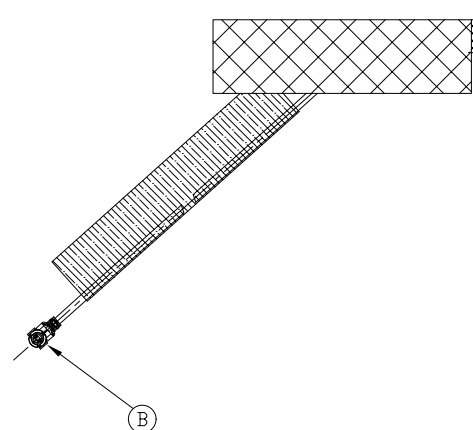
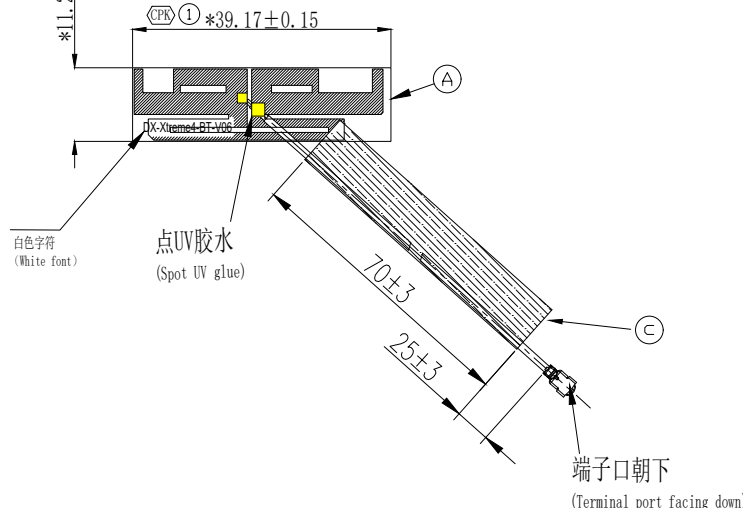
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1	2	3	4	5	6
			0~10	10~30	30~50
			50~	角度 (angle)	○
			0.05	0.10	0.15
			0.20	1°	0.02
					◎
					⊥
					◇

离型纸手撕位
(Release paper manual tearing position)



技术要求:
(technical requirement:)

1. "*"为重点尺寸;
(1. "*" is the key dimension:)
2. 未标注尺寸请依图纸;
(2. Please refer to the drawing for unspecified dimensions:)
3. 不可有虚焊、漏焊、短线、断线等操作不良;
(3. There should be no poor operation such as faulty soldering, missing soldering, short wires, broken wires, etc:)
4. 符合 RoHS 要求。
(4. Meet RoHS requirements.)

C	线材海绵 (Cable sponge)	PUF	黑色 (blue)	
B	端子同轴线 (RF connector)	Cable	黑色 (blue)	
A	FPC	Electrolytic copper PI	黑色 (black)	
序号 (serial number)	零件名称 (Part Name)	材质 (material)	颜色 (colour)	备注 (Note)



深圳大显科技有限公司
Shenzhen Topant Technology Co., Ltd.

机型 (Machine model)	Xtreme4	产品颜色 (Product Color)	黑色 (black)	日期 (date)	2023/8/8
项目编码 (Project Code)	Bt-reme4-037	模面处理 (Mold surface treatment)	NA	结构 (MD)	闭业智
零件名称 (Part Name)	BT天线 (BT antenna)	单位 (unit)	mm	比例 (scale)	1:1
零件编码 (Part Number)	1t-reme4-037	第三视角 (Third perspective)	⊕	审核 (check)	周康
材质 (material)	FPC+sponge+RF connector			批准 (ratify)	张磊
保存路径 (Save Path)				当前版本 (current version)	A

A	首次发行 (Initial Issue)	2023/8/8	
版本 (edition)	描述 (describe)	日期 (date)	备注 (Note)